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TV AND COLLEGE TEACHING
A FIRST EXPERIMENT IN EDUCATION

- David W. Russell
The Pennsylvania State University

Probably the first experiment using closed circuit television for teaching a university course in field of Education was conducted at The Pennsylvania State University during the fall semester of 1955. The research was designed to answer the question: Does the use of presentation via TV in the classroom provide equal modification of achievement and attitude when compared with live presentation? The course was the Introduction to Education, better known at the University as "Education 1." This course is a Pennsylvania requirement for certification of elementary and secondary school teachers as well as a University requirement for the bachelor's degree in Education. The enrollment is heterogeneous. Among the 180 enrolled in Education 1 for the fall semester of 1955, 48 percent were from the College of Education and the rest from all of the other eight[1] academic divisions. The students ranged from first term freshmen to last semester seniors but a majority were students beginning their sophomore year. This research was made possible through the cooperation of the Instructional Research Program, which furnished the T.V. technical assistance[2] and the closed circuit television facilities made available through a grant from the Fund for the Advancement of Education. The Pennsylvania State University Council on Research contributed a small fund.

There are four aims of Education 1. The first is to give all the students an introductory understanding of the social foundations, organization, and functioning of our American School System. Whether the students are planning to be teachers or not, this part of the course is designed to give them some understanding of the responsibilities of citizenship in the relationships of the home, school, and community.

The second aim of Education 1 is to give all the students an insight into teaching as a profession and is closely related to the third aim which is to give the faculty an opportunity to judge the qualifications of the students who are planning to be teachers. As an outcome of this aim a few students who planned to be teachers changed to other fields and some who enrolled in Education 1 as an elective course decided to make teaching and education their profession. The fourth, and very important purpose of this course to all students enrolled, is provided in a personalized guidance service including at least one interview for each student with a member of the Counselor Education Division of the Department of Education.[3] During these conferences students were free to discuss and receive counsel on any phase of their university life or personal problems. During the early part of the course tests[4] were given to all students concerning study habits,

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[1]Colleges of Agriculture, Business Administration, Chemistry and Physics, Engineering and Architecture, Home Economics, the Liberal Arts, Mineral Industries, and Physical Education and Athletics.

[2]Dr. C.R. Carpenter, Director Instructional Research Program, Leslie P. Greenhill, Associate Director, Joseph A. Murnin, H. Dennis Sherk, and Luther F. Kepler, Jr., technical assistants.

[3]Dr. George R. Hudson with graduate assistants directed the personal interview program.

[4]A variety of tests were given, each student also submitted a brief autobiography.

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personal aptitudes, and other areas in order to collect data in advance for the personal interviews. The content and activities in Education 1 were planned to integrate the four aims of the course but the television experiment was aimed chiefly at studying the learning of subject matter content of the course and the changes in attitudes.

Education 1 was organized so that three sections, or classes of thirty students, met together as one group twice each week for one class period. These classes were called the "Non-TV" Group. The other three sections, or classes, met twice a week in separate classrooms equipped with closed circuit television facilities. These classes were called "TV" Group. Though the classes were not "balanced" by having students exactly the same potential academic ability or exactly the same distribution by semester and academic division, they were quite similar in most respects. There was a faculty member in charge of each of the six classes. The content material was planned for the TV Group by the instructor of the TV classes and for the Non-TV Group by the instructors of these classes but cooperating to make the presentation of similar content to both groups.[5] Students assisted and participated in presenting content from time-to-time, depending on the nature of the subject matter. Panels, felt boards, blackboard diagrams and student speeches were used. In addition to the twice-weekly class meetings, all classes met together for a general assembly program seven times during the semester. These assembly programs presented topics that were of mutual interest to all groups and difficult to present on the same basis separately to the TV and Non-TV Groups.

Evaluation of student achievement was made in two general ways. At mid-term, or at the conclusion of the first eight weeks, all students were given the same essay-type examination on general content. These "bluebooks" were read and graded at a roundtable meeting of the six instructors. Any queries that came up concerning the examination grading were discussed by the combined Education 1 staff. By this method it was felt that each examination paper received the same treatment and interpretation. The final semester examination was done in a similar fashion. Though space limits a detailed explanation, the plan was reasonably well controlled and organized to provide some interesting research in teaching the university course Education 1 by closed circuit television and to provide a basis for continued research in this field during the second semester. While the findings are not intended to be conclusive they will serve as one guide post in considering the use of closed circuit television in teaching a university course in education.

Dr. Hugh M. Davison supervised the testing, pre and post tests of the Minnesota Teacher Attitude Inventory and the Inventory of Beliefs. These with the results of mid-term and final examination were compared statistically to see if there were differences in results that might not be due to chance.

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[5]Faculty members conducting the classes were Joseph Alessandro, Hugh M. Davison, Herman C. Kranzer, David W. Russell, Gilbert R. Selders, E. Terry Schwarz, assisted by other members for special lectures.

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Comparison of Group Results in Achievement

Group	N	Mid-Term X Mean	S.D.	Final Y Mean	S.D.	r_{xy}
TV	73	36.8	4.34	42.1	5.18	.356
Non-TV	82	35.9	5.95	41.0	4.50	.442

$t\ (\bar{X}-\bar{X}) = 1.08$ $t\ (\bar{Y}-\bar{Y}) = 1.40$

As indicated by "t's" above there is no significant difference between the Mean mid-term and final examination group results. The TV and Non-TV groups are roughly equal in content performance. However, the Non-TV group became clearly more academically homogenous where as TV group became more heterogenous, see Standard Deviations above. These shifts in standard deviations approached the 5 percent level of confidence.

Comparison of Group Results in Attitude as Measured by the Minnesota Teacher Attitude Inventory (key for right answers only)

Group	Pre-Test X N	M	S.D.	Final Test Y M	S.D.	r_{xy}	$t\ (\bar{Y}-\bar{X})$
TV	68	78.49	14.19	83.22	16.10	.79	3.93
Non-TV	76	81.87	17.96	87.72	18.29	.86	5.29

$t\ (\bar{X}-\bar{X}) = 1.26$ $t\ (\bar{Y}-\bar{Y}) = 1.57$

Comparing initial and final positions of the groups there is no significant difference at 5 percent level in mean scores. Comparing the gains made by both groups, in each case t = 3.93 and t = 5.29, there was a significant shift in attitude in a direction favorable to teaching. Both groups as indicated by standard deviation tend to become more hetero genous in their attitudes. When the Davison key to the MTAI was used the results were similar to the above with the exception that the TV group became significantly more heterogenous wherein the Non-TV group became significantly more homogenous when "t" tests were done on the standard deviations. The Davison key was based on responses of experienced teachers.

Comparison of Group Results in Attitude
as Measured by the Inventory of Beliefs

Group	N	Pre-Test X M	Pre-Test X S.D.	Post Test Y M	Post Test Y S.D.	r_{xy}	t $(\bar{Y}-\bar{X})$
TV	47	69.09	14.4	71.64	15.9	.82	1.9
Non-TV	52	75.6	11.5	78.8	12.8	.70	2.4

For those who had an initial and final test on the Scale of Beliefs, the course in Education 1 appears to liberalize attitudes as indicated by the significant "t's." However, college life as a whole may have done this. The high r's here as in the MTAI results might indicate that the course did not greatly shift the individuals within their respective groups. It is not apparent why the initial attitude scores of the Non-TV group are higher. There was no attempt to match groups on skills or attitudes, but there may have been some selection of class section on the part of the students.

Major Findings

Education 1, as taught by both methods, had a positive favorable effect upon the students. It is realized that a large part of the course had procedures and materials in common for both groups. The difference was in presentation of materials by closed circuit TV. Presentation by TV was successful in that it apparently equaled live presentation in the classroom with respect to that content as measured by essay examination. Significant gains in desired attitudes as measured by two tests were made by both groups. However, the Non-TV classes were made more homogenous while the TV group became more hetrogenous. This may have been due to student and faculty lack of experience with TV or it may be that the live force of a teacher in the classroom tends to make for cohesive instruction. On the Davison key to the MTAI this same situation was revealed in attitudes toward teaching. The slightly more favorable attitude of the Non-TV group may have assisted in creating the cohesiveness of scores shown.